



## INVESTIGATOR'S ANNUAL REPORT

United States Department of the Interior  
National Park Service

All or some of the information you provide may become available to the public.

OMB # (1024-0236)  
Exp. Date (11/30/2010)  
Form No. (10-226)

<b>Reporting Year:</b> 2008	<b>Park:</b> Shenandoah NP	<b>Select the type of permit this report addresses:</b> Scientific Study										
<b>Name of principal investigator or responsible official:</b> Deborah Althoff		<b>Office Phone:</b> 703-682-4347										
<b>Mailing address:</b> 2560 Huntington Avenue Alexandria, VA 22303		<b>Office FAX</b>  <b>Office Email</b> deborah.althoff@itt.com										
<b>Additional investigators or key field assistants (first name, last name, office phone, office email)</b> <table><tr><td><b>Name:</b> Michael Smith</td><td><b>Phone:</b> 410-598-6512</td><td><b>Email:</b> michael.smith@itt.com</td></tr><tr><td><b>Name:</b> Thomas Schneider</td><td><b>Phone:</b> 703-682-4394</td><td><b>Email:</b> thomas.schenider@itt.com</td></tr><tr><td><b>Name:</b> Amy Harper</td><td><b>Phone:</b> 703-682-4390</td><td><b>Email:</b> amy.harper@itt.com</td></tr></table>				<b>Name:</b> Michael Smith	<b>Phone:</b> 410-598-6512	<b>Email:</b> michael.smith@itt.com	<b>Name:</b> Thomas Schneider	<b>Phone:</b> 703-682-4394	<b>Email:</b> thomas.schenider@itt.com	<b>Name:</b> Amy Harper	<b>Phone:</b> 703-682-4390	<b>Email:</b> amy.harper@itt.com
<b>Name:</b> Michael Smith	<b>Phone:</b> 410-598-6512	<b>Email:</b> michael.smith@itt.com										
<b>Name:</b> Thomas Schneider	<b>Phone:</b> 703-682-4394	<b>Email:</b> thomas.schenider@itt.com										
<b>Name:</b> Amy Harper	<b>Phone:</b> 703-682-4390	<b>Email:</b> amy.harper@itt.com										
<b>Project Title (maximum 300 characters):</b> Backgrounds and Interferents Project												
<b>Park-assigned Study or Activity #:</b> SHEN-00350	<b>Park-assigned Permit #:</b> SHEN-2008-SCI-0009	<b>Permit Start Date:</b> May 19, 2008	<b>Permit Expiration Date:</b> Dec 01, 2008									
<b>Scientific Study Starting Date:</b> May 19, 2008		<b>Estimated Scientific Study Ending Date:</b> Dec 01, 2008										
<b>For either a Scientific Study or a Science Education Activity, the status is:</b>  Completed		<b>For a Scientific Study that is completed, please check each of the following that applies:</b>  <input type="checkbox"/> A final report has been provided to the park or will be provided to the park within the next two years  <input type="checkbox"/> Copies of field notes, data files, photos, or other study records, as agreed, have been provided to the park  <input type="checkbox"/> All collected and retained specimens have been cataloged into the NPS catalog system and NPS has processed loan agreements as needed										
<b>Activity Type:</b> Research												
<b>Subject/Discipline:</b> Water Quality												

### Purpose of Scientific Study or Science Education Activity during the reporting year (maximum 4000 characters):

The US Army Product Director Test Equipment Strategy and Support (PD TESS) has funded Lockheed Martin the program titled "Worldwide Collection of Background and Interferent Signatures". This program will collect background and interferent signature measurements from operationally relevant locations throughout the world. The signature data will be used to provide real-world background information for use during developmental test and evaluation of Chemical Biological Defense (CBD) detection equipment. The data will also be used to extrapolate to operationally representative signatures for areas where no actual data exists. ITT Corporation is the lead performing subcontractor for Lockheed Martin and as such has been tasked with the complete technical solution for this program. ITT along with MESH Inc. will be performing all of the collections.

Known background and interference data was identified for a set of government sensors developed for the following areas: in situ chemical and biological sensors, chemical and biological remote sensors for air and water monitoring. The backgrounds and interferences identified were weighted using operational criteria and down selected through analysis of alternatives (AoA) using Pugh Matrices. Instrumentation for collecting the identified backgrounds and interferent signatures was also down selected by a similar AoA approach based on a broad set of measurement criteria. The down selected set of instruments has been purchased and we will start our collection events that cover the following geographical features: urban, desert, tropical, jungle, polar, mountain, tundra, wooded, freshwater features, and networked military detectors. The collection from these features will be accomplished during 8 collects over the next two years.

**Findings and status of Scientific Study or accomplishments of Science Education Activity during the reporting year (maximum 4000 characters):**

Environmental samples were collected in May and September. Data was put into our database for later analysis.

**For Scientific Studies (not Science Education Activities), were any specimens collected and removed from the park but not destroyed during analysis?**

No

**Funding specifically used in this park this reporting year that was provided by NPS (enter dollar amount):**

\$0

**Funding specifically used in this park this reporting year that was provided by all other sources (enter dollar amount):**

\$0

**List any other U.S. Government Agencies supporting this study or activity and the funding each provided this reporting year:**

**Paperwork Reduction Act Statement:** A federal agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. Public reporting for this collection of information is estimated to average 1.625 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the forms. Direct comments regarding this burden estimate or any aspect of this form to Dr. John G. Dennis, Natural Resources (3127 MIB), National Park Service, 1849 C Street, N.W., Washington, DC 20240.